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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,167	03/31/2004	Philip Mattos	851963.417	7143

38106 7590 05/17/2007

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EXAMINER	
MATIN, NURUL M	

ART UNIT	PAPER NUMBER
2611	

MAIL DATE	DELIVERY MODE
05/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/815,167	MATTOS, PHILIP	
	Examiner	Art Unit	
	Nurul M. Matin	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 November 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5-8,10-12,14,18-20 and 24* is/are rejected.

7)☒ Claim(s) *3,4,9,13,15-17,21-23,25 and 26* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/22/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-2, 5-8, 10-12, 14, 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhodzishsky et al, US 6493378 and in view of Kohli et al, US 2004/0202235.

Re claim 1, Zhodzishsky discloses a method of acquiring a received broadcast signal of the type having a repeated code to distinguish the signal from other codes broadcast at substantially the same frequency but having small differences due to frequency shifts, comprising: mixing the received broadcast signal with a local frequency derived from a master clock source (fig.2, col.9, line 58-65, "The filtered broadcast signal 12 is then provided to the input of a quadrature analog-digital converter (QADC) 13, QADC 13 comprises two multipliers 130a and 130b, a local oscillator 133"); digitizing the received broadcast signal to produce a received digitized signal(fig.2, col.9, line 65-66,"two analog-to-digital converters (ADC) 132a and 132b"). But Zhodzishsky fails to disclose the following limitation. However, Kohli does teach correlating the received digitised signal with a local version of the repeated code using a clock derived coherently from the master clock source for a first time period to produce a first result (fig.3 & 4, page 4, Para [0040], line 6-14, Para [0042], and Para [0047], line

1-8, which is the early correlation; correlating the received digitised signal with a local version of the repeated code using the clock derived coherently from the master clock source for a second time period separated from the first time period by a separation period to produce a second result(fig.3 &4, page 4, Para [0040], [0042], [0047], which is the late correlation); and combining the first and second correlation results by comparing the location of correlation peaks to reject peaks not appearing at the same position in both the first and second correlation results to thereby acquire the broadcast signal(page 5, Para [0052], page 10, Para [0124], "Once the correlations are performed, the correlation results for each set of n Code Samples 80 are summed in summers 84 to produce a series of values each separately indicating the correlation of n Signal Samples 75 with each of the sets of n Code Samples 80. These correlation results are applied to threshold test 82" and since the correlation products for each delay in each channel are summed therefore correlation peaks to reject peaks will not appear at the same position).

Therefore, taking the combined teaching of Zhodzishsky and Kohil, as a whole, it would have been obvious to one of ordinary skill in the art to incorporate the arrangement of a correlating the received digitised signal with a local version of the repeated code using a clock derived coherently from the master clock source for a first time period to produce a first result; correlating the received digitised signal with a local version of the repeated code using the clock derived coherently from the master clock source for a second time period separated from the first time period by a separation period to produce a second result; and combining the first and second correlation

results by comparing the location of correlation peaks to reject peaks not appearing at the same position in both the first and second correlation results to thereby acquire the broadcast signal as thought in Kohli into Zhodzishsky so that the output of threshold test 82 specifies the number of delays which represent the prompt correlation for the reacquired satellite signal.

Re claim 2, Zhodzishsky and kohli discloses a method according to claim 1, and Kohli reference also teaches an integration peak is one for which the amplitude is N times the mean correlation amplitude (page 5, Para [0051].

Re claim 5, Zhodzishsky and kohli discloses a method of claim 1, Kohli reference also teaches a correlation peak is one for which the neighboring code positions are lower (page 5, Para [0048].

Re claim 6, Zhodzishsky and kohli discloses a method of claim 1, and Zhodzishsky reference also teaches a correlation peak is one for which the first and second correlation results are derived from a signal at the same frequency (fig.2, col.9, line 66-col.10, line 1).

Re claim 7, Zhodzishsky and kohli discloses a method of claim 1, and Kohli reference also teaches when there is more than one possible correlation peak, the larger peak is selected (page 12, Para [0145] & page 22, Para [0249].

Re claim 8, Zhodzishsky and kohli discloses a method of claim 1, and Kohli reference also teaches the first and second integration periods are of the order 100 ms (page 18, Para [0216].

Re claim 10, Zhodzishsky and kohli discloses a method according to any preceding claim, and Kohli reference also teaches the separation period is chosen such that the other codes broadcast at substantially the same frequency produce integrations at different relative positions in the first and second integrations due to the frequency shifts (page 22, Para [0252].

Re claim 14, which claim the same subject matter as recited in claim 10. Therefore, claim 14 has been analyzed and rejected with respect to claim 10.

Re claim 11, Zhodzishsky and kohli discloses a method of claim 1, Kohli reference also teaches the signal is a GPS signal (page 3, Para [0035].

Re claim 12, Zhodzishsky discloses a system arranged to acquire a received broadcast signal, of the type having a repeated code, to distinguish the signal from other codes broadcast at substantially the same frequency but having small differences due to frequency shifts, the circuit comprising: a clock divider arranged to receive a master clock signal and to produce a mixing frequency for mixing with the received broadcast signal to reproduce a mixed down signal and a correlation clock (fig.2, col.9, line 58-65, "The filtered broadcast signal 12 is then provided to the input of a quadrature analog-digital converter (QADC) 13, QADC 13 comprises two multipliers 130a and 130b, a local oscillator 133"); and a comparator arranged to compare the results of the at least two correlations by comparing the location of integration peaks to reject peaks not appearing at the same position in the results of the at least two integrations(col.25, line 18-24, "it is well within the skill of one or ordinary skill in the GPS/GLN art to construct a computer simulation model of the correlation process using the reference

code S.sub.P2 (t) along with the measured characteristics of the input signal and its front shape, and the variational differences in the correlation signal caused by changes in the parameters may be readily plotted and compared by computer"). Zhodzishsky fails to disclose the following limitations. However, Kohli does teach a correlator arrangement arranged to receive the digitised signal and the correlation clock and to correlate the received digitised signal with a stored copy of the repeated code for at least two integration periods separated by a separation period (page 22, Para [0252]& page 23, Para [0268]; a store arranged to store the results of the correlations (fig.3, which is the threshold test 82).

Therefore, taking the combined teaching of Zhodzishsky and Kohil, as a whole, it would have been obvious to one of ordinary skill in the art to incorporate the arrangement of a correlator arrangement arranged to receive the digitised signal and the correlation clock and to correlate the received digitised signal with a stored copy of the repeated code for at least two integration periods separated by a separation period; a store arranged to store the results of the correlations as thought in Kohil into Zhodzishsky so that the output of threshold test 82 specifies the number of delays which represent the prompt correlation for the reacquired satellite signal.

Re claim 18, Zhodzishsky and kohli discloses the system of claim 12, and Kohli reference also teaches the system is a semiconductor integrated circuit (fig.5, page 12, Para [0140].

Re claim 19, a GPS receiver comprising the system of claim 12(see Kohli, page 2, Para [0021].

3. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kohli et al, US 2004/0202235 and in view of Logue et al, US 7187742.

Re claim 20, Kohli discloses a receiver for acquiring a received broadcast signal, comprising: a radio circuit, comprising:

an analog-to-digital converter coupled to the mixer and configured to digitize the mixed received signal to produce a digitized received signal (fig.19, which shows that a mixer is couple with the ADC); and a digital signal processor coupled to the radio circuit (fig.19, page 24, Para [0275]) the digital signal processor comprising: a correlation circuit configured to correlate the digitized received signal using the correlation clock signal to produce two correlation results(fig.3, page 10, Para [0124], it says once the correlations are performed, the correlation results for each set of n code samples 80 are summed in summers 84 and the correlation results are applied to threshold test 82 and the two correlation results are the early and late correlations ; and an algorithm processing unit configured to compare the correlation results to reject correlation peaks not appearing at the same position in the two correlation results(page 10, Para[0124], says that when the correlation results are applied to threshold test 82, the output of which is applied to Sat Processor 46 only when satellite signals 72 have been successfully received). But Kohli fails to teach a clock divider circuit configured to receive a master clock signal and to generate a mixing frequency signal and a correlation clock signal; a mixer coupled to the clock divider circuit and configured to mix the received broadcast signal with the mixing frequency signal and to produce a mixed received signal. However, Logue does (col.3, line 32-44, "clock dividers are used

to generate one or more clock signals of lower clock frequencies from a reference clock signal. Typically, clock dividers divide the frequency of the reference clock signal by an integer value. Conversely, clock multipliers are used to generate one or more clock signals of higher clock frequencies from the reference clock signal. Clock multipliers are couple with clock dividers).

Therefore, taking the combined teaching of Kohil and Logue as a whole, it would have been obvious to one of ordinary skill in the art to incorporate the arrangement of a clock divider circuit configured to receive a master clock signal and to generate a mixing frequency signal and a correlation clock signal; a mixer coupled to the clock divider circuit and configured to mix the received broadcast signal with the mixing frequency signal and to produce a mixed received signal as thought is Logue into Kohli to provide clocking circuits which can generate one or more clock signals having frequencies that are fractional values of the frequency of the reference clock signal.

4. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kohli et al, US 2004/0202235 and in view of Sousa et al, US 7010022.

Re claim 24, Kohli discloses a method of acquiring a received broadcast signal of the type having a repeated code to distinguish the signal from other codes broadcast at substantially the same frequency but having small differences due to frequency shifts, the method comprising: mixing the received broadcast signal with the derived code generator clock signal and digitizing the mixed signal to produce a received digitized signal (fig.19, it shows that broadcast signal is mixed with the mixer with the code

generator clock signal and then digitizing the mixed signal); integrating the received digitized signal for a first time period to produce a first result and integrating the received digitized signal for a second time period separated from the first time period by a separation period to produce a second result(page 4, Para [0040], page 23, para [0268], page 11, Para [0136], "It is important to note the seamless integration of tracking and reacquisition provided by the present invention in that the same correlations are used for tracking and reacquisition and the related speed of capture and lock and simplicity provided thereby").; and combining the first and second results and comparing the location of correlation peaks to reject peaks not appearing at the same position in both the first and second results to thereby acquire the broadcast signal(page 10, para [0124], "Once the correlations are performed, the correlation results for each set of n Code Samples 80 are summed in summers 84 to produce a series of values each separately indicating the correlation of n Signal Samples 75 with each of the sets of n Code Samples 80. These correlation results are applied to threshold test 82, the output of which is applied to Sat Processor 46 only when satellite signals 72 have been successfully received"). But kohli fails to disclose deriving a code generator clock signal directly from a radio receiver L-band local oscillator. However, Sousa does(col.2, line 18-23, "a local spreading code generating means for generating a local spreading code according to the spreading code of received signal, and a direct conversion circuit for generating a reference local signal based on the local signal from the local oscillator and the local spreading code from the local spreading generating means").

Therefore, taking the combined teaching of Kohil and Logue as a whole, it would have been obvious to one of ordinary skill in the art to incorporate the arrangement of a deriving a code generator clock signal directly from a radio receiver L-band local oscillator as thought in Sousa into Kohli to provide a spread spectrum receiver for a software radio capable of performing the digital processing at the data symbol rate instead of the chip rate.

Allowable Subject Matter

3. Claims 3-4, 9, 13, 15-17, 21-23, 25-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nurul M. Matin whose telephone number is 571-270-1188. The examiner can normally be reached on mon-fri (7:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nurul Matin

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